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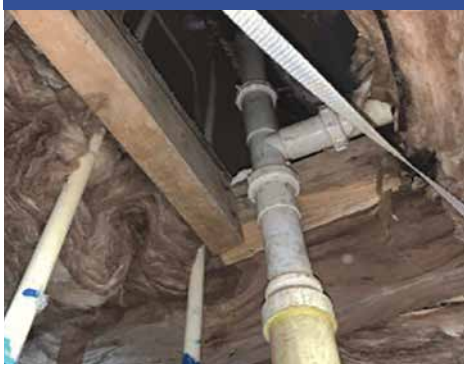
13-2

Air Seal Large Penetrations in a Subfloor

Job Aid for Air Seal Floor Above Unconditioned Subspace (Basement or Crawl Space) Badge

Aligns With Standard Work Specifications 3.0101.1, 3.0104.1

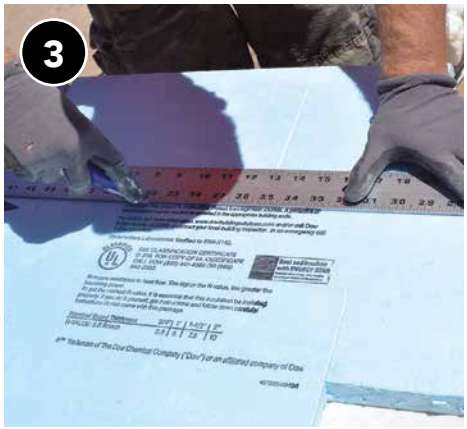
BEFORE



Larger penetrations in the subfloor, especially plumbing chases, need to be air sealed when they define the pressure boundary.

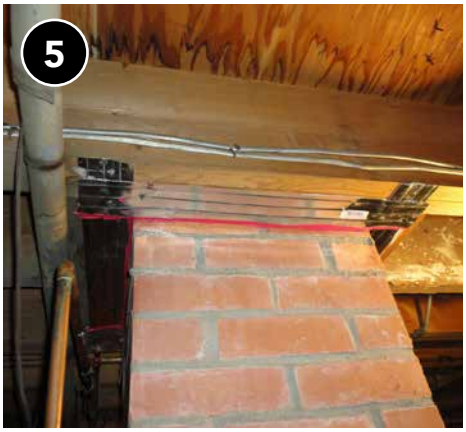
Spray foam expands to fill large holes, but may need fire protection (e.g., thermal/ignition barrier).

For larger holes, rigid infill material is needed.



Cut rigid infill with attention to locations of pipes and electrical.

Secure rigid infill in place and seal smaller gaps around infill with appropriate materials.



Use appropriate materials for high-temperature locations, such as around flues and chimneys.

AFTER

Depending on the size of the gap, one-part spray foam or a combination of infill material and foam or caulk can be used.

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Checklist

Air seal floor above an unconditioned subspace (basement or crawl space)

DESIRED OUTCOME

Consistent pressure boundary between conditioned and unconditioned space.[1]

- ☐ Remove existing insulation as needed to access air sealing locations.
- ☐ Ensure all wall cavities are enclosed on all six sides (e.g., have top and bottom plates). Install additional blocking where necessary.
- ☐ Seal the following cracks, penetrations, and chases to prevent air movement with the appropriate materials based on hole sizes according to the AIR SEALING MATERIALS GUIDELINES table below:
  - ☐ Chases
  - ☐ Plumbing penetrations
  - ☐ Electrical penetrations
  - ☐ Chimney/flue[2]
  - ☐ Ductwork penetrations into subspace
  - ☐ Any other holes/penetrations in the floor plane/boundary.
- ☐ Clean work area.

AIR SEALING MATERIALS GUIDELINES	
HOLE/GAP SIZE	MATERIALS/NOTES
1/4" or less (small)	Caulk
1/4"–2" (medium)	One-component foam or mastic
2"–3" (large)	Two-component foam
3" or larger (extra-large)	Infill material installed that will not bend, sag, or move Support material (e.g., 2X4) installed for spans wider than 24"

1. Relevant Standards: 3.0101.1, 3.0104.1

2. Materials must be appropriate for high-temp situations.

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For more information, visit: energy.gov/eere/wap

DOE/GO-102023-5934 • September 2023